



**FIVE-YEAR REVIEW REPORT**

**MANNHEIM AVENUE DUMP SUPERFUND SITE**

**GALLOWAY TOWNSHIP**  
**ATLANTIC COUNTY, NEW JERSEY**

**Prepared by:**  
**U.S. Environmental Protection Agency**  
**Region II**  
**New York, New York**

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U.S. Environmental Protection Agency  
Region II  
Emergency and Remedial Response Division  
Five-Year Review (Type I)

Mannheim Avenue Dump Superfund Site  
Galloway Township, Atlantic County, New Jersey

**I. INTRODUCTION**

**Authority Statement Purpose** The U.S. Environmental Protection Agency (EPA) Region II conducted this statutory five-year review pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and OSWER Directives 9355.7-02 (1991), 9355.7-02A (1994) and 9355.7-03A (1995). The purpose of a five-year review is to ensure that a remedial action remains protective of public health and the environment and is functioning as designed. This document will become part of the Site's Administrative Record file. This review (Type I) is applicable to sites at which remedial action activities have been completed. Ongoing post-remedial environmental monitoring activities at the Site have indicated that the remedy is protective of public health and the environment.

**Site Characteristics** The Mannheim Avenue Dump Superfund Site is located along Mannheim Avenue in a two acre sand and gravel clearing in Galloway Township, Atlantic County, New Jersey. Beginning in 1964, Lenox China obtained permission from Galloway Township to use the site to dispose of industrial wastes produced at its manufacturing facility in Pomona, New Jersey. The drummed wastes were deposited in an excavated portion of the site, approximately five feet below ground surface, and were subsequently compacted into 35 waste mounds, along with other municipal wastes, and covered with soil. Leaded porcelain fragments and household refuse was also mixed in the waste mounds.

An investigation by the New Jersey Department of Environmental Protection (NJDEP) in 1982 revealed that many of the 55-gallon drums were exposed and deteriorating. Samples collected from the exposed drums indicated the presence of trichloroethylene (TCE), toluene, ethylbenzene, methylene chloride, cadmium, lead, nickel, and chromium.

The site was placed on the National Priorities List in 1983. In December 1984, EPA issued an Administrative Order to Lenox and the Township of Galloway to remove the waste material buried in the soil mounds at the site, conduct soil and groundwater sampling, and

excavate and remove contaminated soil from the site. By August 1985, Lenox had completed the excavation of the waste material from the soil mounds. Approximately 25,000 pounds of degreasing sludge were separated from general trash and transported off site for incineration.

In 1988, pursuant to the April 1988 Administrative Order on Consent, Lenox, Inc. and the Township of Galloway conducted a remedial investigation (RI) and feasibility study (FS) at the site. In July 1990, EPA issued the FS Report which developed and evaluated alternatives for groundwater remediation. Results of the RI indicated TCE was present in the shallow and deep aquifers underlying and adjacent to the site at concentrations of up to 29 parts per billion (ppb) and 47 ppb respectively. Lead was present in the soil at concentrations below EPA's acceptable range for residential land use, TCE was not detected in the soil. Toluene was detected in the groundwater at concentrations above the State of New Jersey Drinking Water Standards of 50 ppb in four deep zone monitoring wells during one sampling round. Concentrations of toluene in these wells during other sampling rounds did not exceed 10 ppb. The State of New Jersey Drinking Water Standards for toluene is currently 1,000 ppb.

## II. DISCUSSION OF REMEDIAL OBJECTIVES; AREAS OF NON-COMPLIANCE

Based upon the results of the RI and the FS, EPA issued a Record of Decision (ROD) for the site on September 27, 1990. The remedy selected in the ROD included:

- Extraction of contaminated groundwater from the shallow and deep zones of the aquifer system, with on-site treatment via air stripping and discharge of treated groundwater to the aquifer in order to restore the aquifer to the State of New Jersey Drinking Water Standards;
- Monitoring of groundwater quality during design and operation of the treatment system; and
- Contingency planning to install individual carbon adsorption treatment units at residences, if monitoring indicates that site-related contaminants are threatening residential wells.

In June 1991, Lenox Inc. and the Township of Galloway entered into a Consent Decree with EPA to undertake implementation of the remedy selected in the ROD. This implementation involved the performance of the Remedial Design (RD) and the construction of the remedy.

Between November 1993 and January 1994, Lenox attached Point of Entry Treatment Systems (POETS) to six of the fourteen residential wells downgradient of the site, after TCE was detected in monitoring well 23-2, the monitoring well closest to the residences and in residential well M and P (less than 0.5 ppb). The POETS

effectively reduced the TCE levels from less than 0.5 ppb to non detect levels for both residential wells M and P. The State of New Jersey Drinking Water Standards of 1 ppb for TCE has not changed since the ROD was issued in 1990.

In April 1994, construction of the groundwater remediation system was initiated. Construction activities were completed in August 1994, at which time the plant was turned on. The groundwater remediation system consisted of three extraction wells. Two of the three extraction wells were screened in the lower aquifer, the other, screened in the upper aquifer. Contaminated groundwater was pumped at the rate of forty gallons per minute to the treatment plant. The treatment plant consisted of an air stripper, which separated the volatile organic compounds (VOCs) from the groundwater. The treated groundwater was then reinjected back into the aquifer. During the operation of the plant, thirty-two monitoring wells were sampled, of which, thirteen wells were sampled on a quarterly basis and nineteen on an annual basis. The fourteen residential wells were also sampled on a quarterly basis.

In October 1995, after over a year of operation, Lenox petitioned EPA for permission to terminate remedial activities at the site. In its petition, Lenox provided an analysis of groundwater monitoring results and concluded that the overall changes in groundwater quality at the site since the operation of the treatment system did not support continued operation of the system.

EPA undertook a review of Lenox's petition to terminate the groundwater treatment system and to modify the groundwater monitoring program. EPA's conclusions concurred with Lenox's that the concentrations of the primary contaminant of concern entering the groundwater treatment plant, TCE, was below the New Jersey Drinking Water Standard of 1 ppb. The data indicated that TCE levels in some of the monitoring wells were steadily declining, and had reached levels of less than 1 ppb for at least one year. The data also indicated that groundwater in wells 17-2 and 21-2 had not achieved the cleanup goal set forth in the ROD, TCE concentrations in well 17-2 (7.9-21.8 ppb) were several orders of magnitude above the cleanup goal and fluctuated widely over the course of sampling events. Groundwater in well 21-2 (1.2-1.7 ppb) contained levels of TCE slightly above the cleanup goal. Based on the review of this data, on February 27, 1996, EPA modified the groundwater monitoring program. Most wells that showed TCE levels below 1 ppb for at least one year were exempted from further monitoring, and some new wells were added for future monitoring. The long-term monitoring program was modified in the following manner: sixteen wells were required to be sampled; ten wells on a quarterly basis, and six wells on an annual basis for volatile organic analysis, primarily TCE. EPA also required that Lenox continue quarterly monitoring of the fourteen residential wells. EPA allowed Lenox to shut off the treatment system since the influent to the treatment plant was below the cleanup level of 1 ppb.

In performing the Five-Year Review, and in response to a further request by Lenox for modification to the groundwater monitoring program. EPA undertook a review of all existing data. All six wells sampled annually continued to show TCE levels below 1 ppb since October 1994 (two months after the treatment plant was turned on). These wells will now be removed from the sampling program. Of the ten wells sampled quarterly, three of the deep wells (10-2, 17-3 and 24-2) have not contained TCE at concentrations exceeding the 0.19 ppb minimum laboratory detection limit since these wells were first sampled. TCE concentrations in the shallow zone wells have remained below 0.5 ppb for the past several years and two shallow wells (7-1 and 8-1) have not contained TCE at concentrations above the minimum laboratory detection limit of 0.19 ppb since 1991. Since the October 1998 sampling round, only well 17-2 continues to contain levels of TCE above 1 ppb. These levels varied between 3.9 to 4.6 ppb. Based on these results, EPA modified the sampling program on May 24, 1999. The number of wells currently monitored has been reduced to seven. These seven wells will now be sampled semi-annually, instead of quarterly.

Monitoring data from the residential wells continues to show no detectable levels of TCE. All the residential wells will continue to be sampled, however, the sampling frequency will be reduced to semi-annually from quarterly. Lenox will continue to maintain ownership of the POETS.

### III. RECOMMENDATIONS

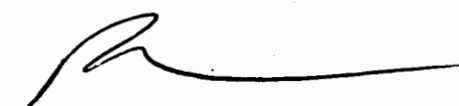
Based on the data, EPA recommends that the long-term monitoring program at the site as revised in May, 1999 should continue until future data indicate otherwise.


### IV. STATEMENT ON PROTECTIVENESS

Based upon a review of five years of quarterly groundwater data monitoring and an August 10, 1999 site inspection performed by EPA's Remedial Project Manager for this site, Nigel Robinson, it has been determined that the remedy selected at the Mannheim Avenue Dump Superfund Site continues to be protective of human health and the environment.

### V. NEXT FIVE-YEAR REVIEW

Since hazardous substances, pollutants or contaminants remain at the Mannheim Avenue Dump Superfund Site above levels that will allow for unlimited use or unrestricted exposure, EPA will conduct another Five-Year Review by August 2004.

  
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Richard L. Caspe, Director  
Emergency and Remedial Response Division

  
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Date

MANNHEIM AVE DUMP